

5.0 Findings and Recommendations

This report documents results of surface water and groundwater monitoring conducted during 2001 to 2005 in the South Valley area of Bernalillo County, NM. The agricultural chemical (agrichemical) water quality impact study is based on samples collected from a monitoring network of a total of forty-five surface water and shallow groundwater sampling locations located in the South Valley. The samples collected for this study are representative only of the surface water and groundwater affected by surface-water interaction along the irrigation drainages and canals and may not be representative of groundwater conditions in outlying areas. Other areas of groundwater contamination are known to exist within the South Valley area. This study was not designed nor intended to address groundwater contamination issues within those known areas.

Findings

With the stated limitations, the findings of this report indicate that the irrigation water, drainage water, and immediately adjacent shallow groundwater in the South Valley do not typically contain detectable levels of herbicides or pesticides or other organic compounds or exhibit significantly elevated levels of inorganic contaminants. To date, the analytical results from surface water samples and samples from the monitoring wells have yielded no detections of any pesticides, herbicides, or other organic compounds indicative of agrichemicals. Any elevated levels of inorganic constituents, such as nitrates, are readily attributable to other sources such as septic tanks. Elevated measurements of fecal coliform found in other overlapping studies such as the acequias monitoring are attributable to multiple sources present within the study area as well as to livestock operations. There is some indication that upstream land use activities may be affecting surface water, and to a minor extent, shallow groundwater quality near the Barr Drain. The acequias sampling study confirms concerns with fecal coliform contamination near MG-7 (the Albuquerque Riverside Drain site / Site 4 of the acequias study).

Recommendations

Based on the findings, the following recommendations are proffered:

- Discontinue routine water quality monitoring of the surface water and monitoring wells.
- Focus any agrichemical studies on shallow groundwater beneath agricultural fields and collect samples from nearby domestic wells rather than adjacent to canals, drains, and ensure adequate data are collected regarding timing and rate of chemical application.
- Do not expand the program to the North Valley without an initial reconnaissance of surface water to determine if such a program is warranted due to the presence of contaminants.

With respect to status and disposition of the existing wells and surface locations:

- Extend the MRGCD license and retain a portion the wells for water level monitoring transects in conjunction with on-going USGS studies, particularly along Rio Bravo Blvd..
- Determine whether monitoring of the Barr Drain surface and shallow groundwater monitoring wells are applicable locations for monitoring of stormwater quality runoff. If so, modify the program to address stormwater quality parameters and flow rate monitoring as allowed by the MRGCD license agreements for those locations.
- For retained locations, establish elevations to within 0.01 feet at wellheads and monitor elevation changes in canals and drains and related responses in the adjacent wells. Install pressure transducers and transducers in the wells, and if feasible establish stage recorders in the adjacent canals and drains.
- Identify County projects that may benefit from retention of wells in other locations such as future locations of detention or storm surge ponds, establish elevations at wells heads, and continue to monitor water levels at those locations.
- For the remainder of the wells, plug and abandon the locations per MRGCD license agreements.

APPENDIX A

***Surface Water Monitoring Results for Acequias Located within
Bernalillo County, 2005***

Prepared by

Staff of Bernalillo County Office of Environmental Health

Surface Water Monitoring Results for Acequias Located within Bernalillo County, 2005

Introduction

The South Valley Partners for Environmental Justice (SVPEJ) worked in collaboration with the New Mexico Environment Department (NMED), Surface Water Quality Bureau to sample eight sites along acequias located in the North Valley and South Valley of Bernalillo County. The sampling was done in response to testimony provided by community residents on surface water quality standards during the Triennial Review held before the Water Quality Control Board in 2004. Residents testified that they had witnessed people swimming in the Rio Grande and acequias that run through Bernalillo County and requested that the Water Quality Control Board change the designated use of this reach of the Rio Grande from secondary to primary contact. The change in designation from secondary to primary contact, to account for the use of the Rio Grande by swimmer, was subsequently approved by the Water Quality Control Board the same year. The residents were also concerned about the quality of water, particularly the occurrence of pesticides in the acequias, and possible exposure of swimmers to these contaminants. In response to these concerns, and the finding that there had been no prior sampling of acequias in Bernalillo County, eight sampling sites were selected by community residents based on their familiarity with existing and prior land uses and potential contaminants.

NMED personnel sampled three of the eight sites (sites 2, 3, and 4), while the other five sites (sites 1, 5, 6, 7, and 8) were sampled by the South Valley Partners for Environmental Justice partners and promoters. NMED Surface Water Quality Bureau personnel trained personnel and promoters on the following: 1) sample collection, 2) quality assurance, and 3) quality control. The training was conducted based on EPA approved quality assurance/quality control protocols.

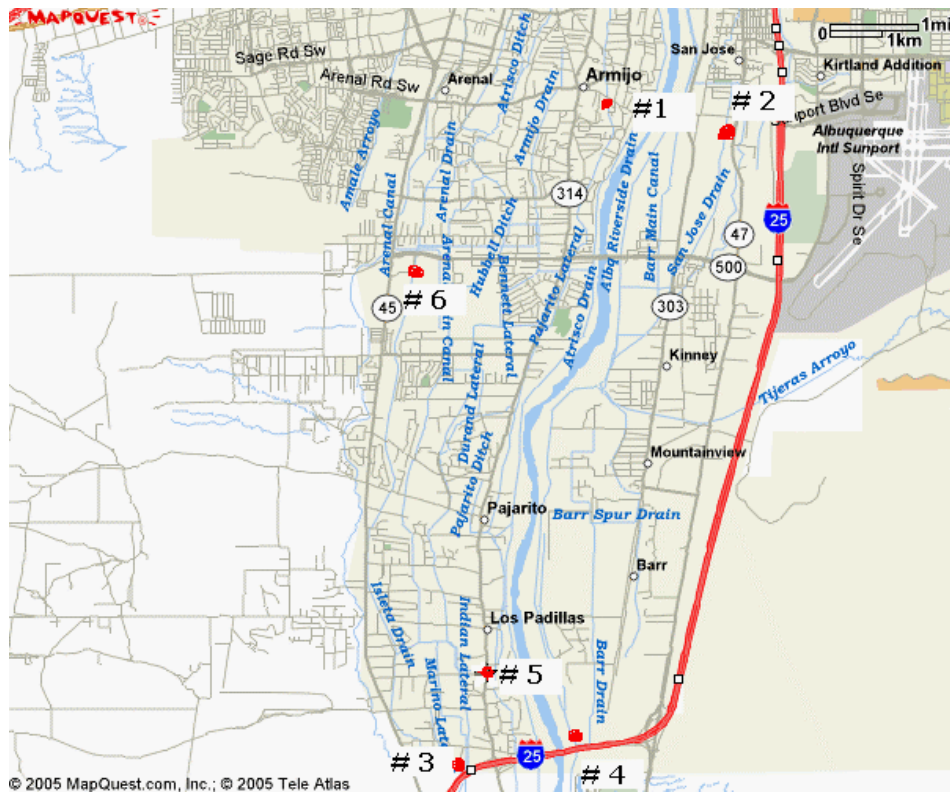
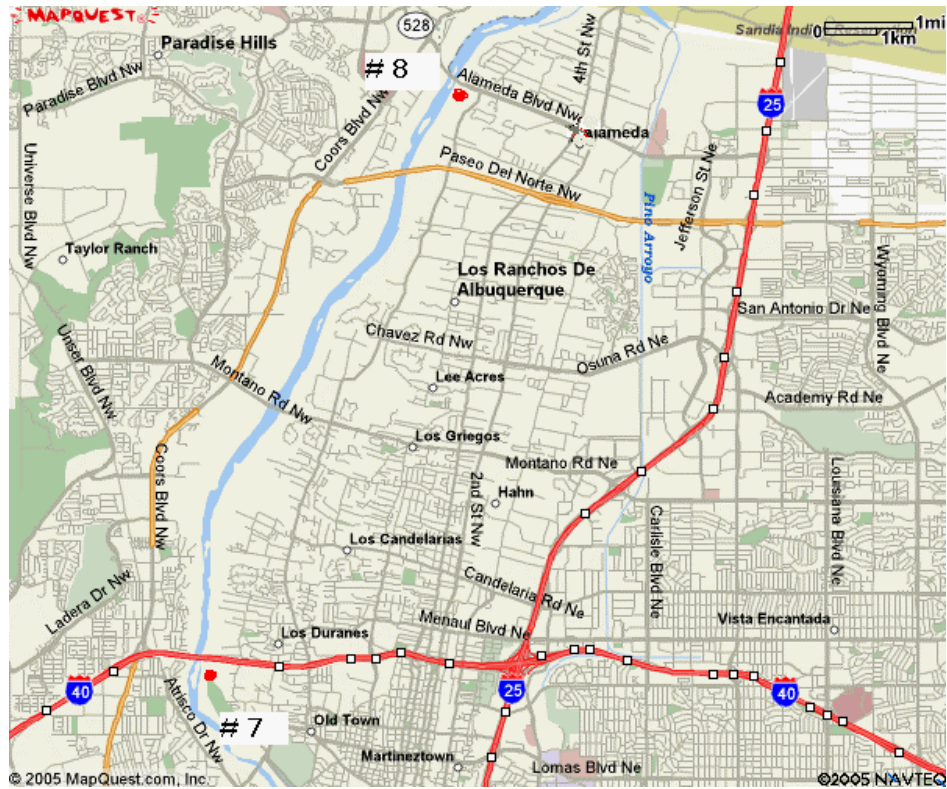
Samples were collected at the above sites, 1 through 8, on three separate occasions representing the three distinct seasons of spring, summer and fall. Therefore, a total of twenty-four sampling events took place during the project period; fifteen sampling events conducted by the SVPEJ and nine sampling events were conducted by NMED.

SVPEJ collected their spring samples from June 22-24, 2005, their summer samples from July 27-28, 2005, and their fall samples from October 18-19, 2005. NMED collected their spring samples from June 22-24, 2005, their summer samples on August 9, 2005, and their fall samples on September 9, 2005. All samples collected, whether by NMED or by SVPEJ, were analyzed for *E. Coli*, total and dissolved trace metals, nutrients, ions, and semivolatile organics. For the semi-volatile organics, NMED also collected soil samples for sites 2, 3, and 4. All samples, those collected by NMED and those collected by SVPEJ, were submitted to the New Mexico Department of Health's State Laboratory Division for analysis.

Sampling Locations

Please contact the Bernalillo County, Office of Environmental Health for the latitude and longitude coordinates of each of the sampling sites. Sites 1 through 6 were located in the South Valley. Site 7 was just south of Interstate 40 near the river and site 8 was at Alameda Blvd. in the North Valley. The following table describes each of the eight sites along with their locations.

Site # and Responsible Party	Site Description	Driving Directions
Site 1 SVPEJ	Ranchos de Atrisco Acequia (ditch) at Arenal Rd., SW	On Arenal Rd. between Gallegos Rd. and Lopez Rd.
Site 2 NMED	San José Drain, South of General Electric facility, just South of where railroad tracks and acequia cross	From Woodward Blvd., between 2nd and Broadway, follow the ditch S on the E side of GE until the San Jose lateral crosses the drain.
Site 3 NMED	Convergence of Los Padillas Drain and Isleta Drain at I-25 , South of Malpais Rd.	Coors Blvd. S almost until I-25. Left on Malpais Rd. going E follow Los Padillas Drain S of Malpais until it joins Isleta Drain
Site 4 NMED	Convergence of Alb. Riverside Drain and Barr-Interior Drain; just N of I-25	Take 2nd St. south of Rio Bravo stay on west side of railroad tracks until north side of I-25, turn west to Riverside drain at junction of Barr to Drain.
Site 5 SVPEJ	Convergence of Isleta Indian Ditch and Indian Lateral	On Isleta Blvd. North of I-25 ~1mile to Ilfield Rd. turn east to ditch turn south on west side of ditch drive 100 yds. to junction of two ditches.
Site 6 SVPEJ	Isleta Drain at Ross Ditch crossing	Off Rio Bravo immediately east side of the 'new' Walmart east of Coors turn south on small dirt road on east side of Drain. Drive past the 1st pipe gate until you reach the Ross ditch crossing, just S of Walmart.
Site 7 SVPEJ	Overlap Drain (smaller drain) at west end of Mountain Rd.	Take Mtn. Rd. west until it ends. Follow paved path toward river.
Site 8 SVPEJ	Overlap Drain under Alameda Blvd. E of Río Grande	Alameda Blvd. West almost to the river





NMED trains community promotoras on surface water sampling techniques. June 2005



Gloria Castillo collects water from the Isleta Indian Ditch site, June 2005

Water Quality Results

Note: As NMED sampled sites 2-4, their name appears on all tables and graphs for these sites.

E. Coli

Of the eight sites sampled, the San Jose Drain site (Site 2), the Los Padillas Drain site (Site 3), and the Albuquerque Riverside Drain site (Site 4) exceeded the New Mexico Administrative Code surface water quality standard for *E. Coli* of 410 cfu/100mls. All three sites exceeded the *E. Coli* standard in the fall, while the San Jose Drain site also exceeded the *E. Coli* standard in the spring.

For more detailed information, please contact Bernalillo County Office of Environmental Health and request: Table 1 and Graph 1 for E. Coli by site ID.

Ions

Ions include the following constituents: ion balance, total suspended solids, total dissolved solids, pH, sulfate, chloride, bicarbonate, carbonate, alkalinity, magnesium, calcium, hardness, sodium, and potassium. Of these, only total dissolved solids, sulfate, chloride, and pH have assigned surface water quality standards. None of the samples collected exceeded these assigned standards.

For more detailed information, please contact Bernalillo County Office of Environmental Health and request: Table 2 and Graph 2 for Ions by site ID.

Metals

Based on the surface water quality standards for dissolved aluminum, antimony, arsenic, boron, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, thallium, vanadium, and zinc, the San Jose site (Site 2) was found to exceed the standard of 0.00077 ppm for dissolved mercury in the fall. The following contaminants, barium, beryllium, manganese, silver, and uranium do not currently have surface water quality standards for them. There were no significant seasonal variations in contaminant concentrations.

For more detailed information, please contact Bernalillo County Office of Environmental Health and request: Table 3 and Graph 3 for Metals by site ID.

Nutrients

Of the nutrients that we tested for, total phosphorous, TKN, ammonia, and nitrate+ nitrite, only nitrite + nitrate has a surface water quality standard (132 mg/L). The others do not have assigned surface water quality standards. The samples collected that were analyzed for nitrite + nitrate did not exceed the surface water quality standards. Additionally, there did not appear to be any seasonal patterns of contaminant concentrations.

For more detailed information, please contact Bernalillo County Office of Environmental Health and request: Table 4 and Graph 4 for Nutrients by site ID.

Semivolatile Organics

There were no exceedances of any of the semivolatile organics tested based on the surface water quality standards. However, of the 97 constituents tested, 50 do not currently have surface water quality standards set for them.

For more detailed information, please contact Bernalillo County Office of Environmental Health and request: Table 5 and Graph 5 for Semivolatiles by site ID.

Soil Quality Results

Soil samples were also collected at Sites 2, 3 and 4 and tested for semi-volatile organics. None of the soil samples collected exceeded the health based screening levels established by the NMED Hazardous Waste Bureau and the Ground Water Quality Bureau Voluntary Remediation Program, and Superfund Section. However, 13 soil samples collected from the San Jose Drain site (Site 2) did exhibit detectable concentrations of semi-volatile organics. These include detection of benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, bis(2-ethylhexyl)phthalate, butylbenzyl phthalate, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene. Soil samples collected from San Jose Drain site did exceed the reference dose (RfD) levels set by the EPA Integrated Risk Information System for three of the semi-volatile organic compounds. These include Bis(2-Ethylhexyl)phthalate, Fluoranthene, and Pyrene.

If a sample were to exceed these health-based screening levels, NMED would begin remediation activity at the site after a thorough assessment. Exceeding the screening levels warrant that action is taken to clean up the site.